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Review Article

Managing Common Ear Problems by Primary Care Providers

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Abstract

Ear ailments (Otitis Media) are a major public health problem in India especially among children. Middle ear inflammation is a spectrum of conditions known as acute otitis media (AOM), Otitis media with effusion (OEM or glue ear) Chronic suppurative otitis media (CSOM) and Cerumen blockage. Acute otitis media a disease of infancy and childhood defined by the presence of inflammation and at least one of the signs of acute illness namely earache, fever, ear discharge, pulling ear etc is a leading cause of childhood morbidity and antibiotic prescriptions in India. It is second only to acute upper respiratory tract infections. Predisposing factors include recurrent common cold, upper respiratory tract infections, tonsil and adenoid infections, chronic rhinitis, sinusitis, nasal allergy, nasopharynx tumours, epistaxis-related nasal packing, and cleft palate.

Signs and symptoms progress from tubal occlusion to pre-suppuration, suppuration, resolution, and potential complications. Otitis media involves inflammation in the middle ear cleft and mastoid, categorized as acute or chronic, with chronic cases further classified as safe with no discharge or unsafe- active infection with discharge.

Otitis media is diagnosed clinically via patient's history, presenting signs and symptoms and objective findings on physical exam (otoscopy) combined. Several diagnostic tools like pneumatic otoscope, tympanometry, and acoustic reflectometry, do aid in the diagnosis.

Otitis media with effusion necessitates monitoring based on severity, with regular reviews to assess treatment effectiveness. Medical management depends upon antibiotics, decongestants, initially. Surgical interventions for specific conditions affecting hearing ability are practiced. A novel surgical technique known as the inside-out raising mucosal-tympano-meatal flap technique is becoming promising in repairing large marginal perforations in the ear and improving hearing.

A primary health care provider can manage most earache conditions needing medical treatment and wax removal. Surgical interventions include four different surgeries: i) Myringoplasty- a surgery to repair a hole in the eardrum. ii) Oculoplastic- a rectification of the middle ear bone problems, responsible for transmitting sound from the eardrum to the inner ear iii) Tympanoplasty: It involves repairing the hole in the eardrum and rectifying any injury to the tiny bones that play a key role in the hearing iv) Mastoidectomy- A surgical removal of the flat air cavities in the mastoid bone behind the ear.

This article is based on a few cases managed or monitored by the author in last 5 years of family medicine practice. It is intended to empower general practitioners in ear examination, timely referral and management of mid-ear infections by medical treatment and do minor ear cleaning processes.

Materials and Methods: This article is based on four cases of ear problems managed or referred and followed in the last 3 years as a family physician. Review of literature of best practices worldwide.

Keywords: otitis media; mastoiditis; acute suppurative otitis media (asom); chronic suppurative otitis media (csom); cerumen blockage; community based csom prevalence

Introduction

Ear ailments are a major public health problem in India especially among children. Otitis media (*OM*) or middle ear inflammation is a spectrum of conditions identified as acute otitis media (*AOM*), Otitis media with effusion (*OEM or glue ear*) Chronic suppurative otitis media (*CSOM*) and earwax

blockage. Acute otitis media a disease of infancy and childhood defined by the presence of inflammation and at least one of the signs of acute illness is a leading cause of childhood morbidity and antibiotic prescriptions in India. It is second only to acute upper respiratory tract infections. Predisposing factors include recurrent common cold, upper respiratory tract infections, tonsil and adenoid infections, chronic rhinitis, sinusitis, nasal allergy, nasopharynx tumours, epistaxis-related nasal packing, and cleft palate. A random effect meta-analysis review of 8 major community based observational studies including 29,756 school children from urban and rural areas in various states of India, the pooled estimated prevalence of 11.66 % of ear ailments in India [3].

Otitis media (OM) involves inflammation in the middle ear cleft and mastoid and is categorized as acute or chronic {further classified as safe (no discharge) or unsafe (active infection with discharge). And Cerumen Blockage. Acute otitis media (AOM) starts as viral, later becoming bacterial [5-6]. Clinicians differentiate stages of progress of OM as tubal occlusion, Hyperaemia, Exudation, pre-suppuration, Suppuration, Resolution or Complications, based on the Signs, and symptoms observed [4-6].

CSOM particularly afflicts younger age populations from rural background with poor socioeconomic status. Moreover, knowledge of symptoms and signs of the disease is likely to result in early seeking of healthcare and hence better treatment outcomes and prevention of complications. Serous otitis media (glue ear) is non-infective with thick effusion in the middle ear, affecting school-going children and causing hearing loss. [7-9].

Cerumen blockage occurs when earwax builds up in your ear or becomes too hard to wash away naturally. Earwax is a helpful and natural part of the body's defense. It cleans, coats, and protects the ear canal by trapping dirt and slowing the growth of bacteria. Earwax blockage that has no symptoms often clears on its own, but sometimes it may need safe removal. The only way to know if an individual has too much earwax, is a primary health care provider looking for it [11].

Diagnosis and treatment planning of ear problems rely on autoscopy, and imaging like CT scans. Examining a patient with tympanic membrane perforation necessitates determining location (pars tensa or pars flaccida) and type (safe or unsafe). Unsafe otitis media, especially in the epitympanum, requires closer attention due to its proximity to vital structures.

Treatment involves antibiotics, decongestants, analgesics, ear cleaning, and myringotomy. Treatment includes decongestants, antihistamines, Valsalva, or surgical interventions like myringotomy or grommet insertion [10]. Chronic suppurative otitis media (CSOM) with tympanic membrane perforation requires thorough evaluation. Treatment involves cleaning, antibiotics, and addressing contributing factors like adenoids. Surgical options include tympanoplasty. Attico/Antrial CSOM, often cholesteatoma, poses risks of bone erosion, foul-smelling discharge, and hearing loss. Surgical intervention, such as mastoidectomy, is the solution.

Antibiotics, decongestants, and surgical interventions are tailored to specific conditions and severity. Otitis media with effusion necessitates monitoring based on severity, with regular reviews to assess treatment effectiveness. Individual cases and associated factors guide treatment and follow-up approaches.

Case Reports:

1.A Case of Safe Otitis Media: Early November 2023 a girl aged 2 years was brought by her mother to me and complained of child having fever, crying and left ear hurt when touched. The child was crying in my OPD too. The history revealed that child had common cold in the last 3 days, when the ambient temperature had gone down to 15^0Celsius.Her body temperature recorded 101^0F, Slight redness of the throat, a congested nose and injected tympanic membrane was noted. Other systemic examination of respiratory, cardiac, and gastrointestinal and joint pain/tenderness (common in this age due to prevailing Rheumatic fever) were all normal.

A provisional diagnosis of Otitis media without discharge was made, the child was given Paracetamol syrup and Amoxycillin syrups and advised to revert if the symptoms increase or do not give any relief immediately or do return after 2 days for follow-up. The child had 50% relief of symptoms on day 3 and continued treatment for 5 days resolution had occurred with no difficulty in hearing equally well from both affected and the other ear.

2. A Rare Case acute necrotizing otitis media: A 4- month infant was brought to paediatric OPD of Gadag Medical College with bilateral ear pain and right facial nerve palsy in early 2022. The case was referred to ENT department, who examined the infant and made a diagnosis of acute necrotizing otitis media *(ANOM)*. It was managed with debridement and intravenous antibiotics obviating the need of surgery. The child was followed up for a period of 6 months where both the ears remained disease free accompanied with hearing gain and grade of facial palsy improvement from grade V to grade II.

3. A Case of OM with Mastoiditis: November 2022, a girl aged 11 years was brought to me with the complaints of pain and swelling behind the right ear. The history of right ear otitis media four weeks ago, treated with home remedies, details revealed that she had trouble sleeping, was pulling her ears for relief from the pain, mild fever, throat infection and there was some serous fluid draining from her right ear and there was muffled hearing. Home management done included i) making the girl to sleep by elevating the mattress with a pillow so that child's head was elevated, ii) They had put ginger juice or ginger oil twice a day after cleaning the discharge iii) An age-old technique of putting warm drops of Olive oil to soothe the ear pain.

The girl was fine for 2 weeks but developed pain and swelling behind the right ear since a week again. On examination there was clear signs of mastoiditis, swelling, redness and tenderness. The case was referred to an ENT specialist, who got an imaging done, that confirmed mastoiditis. Clinical specimens obtained from the middle ear by tympanocentesis for culture and sensitivity, was done and a broad-spectrum antibiotic for 8 days. The girl became afebrile, and the swelling decreased in about 3 days, and complete resolution achieved in a week.

4. A case of csom: A 21-year-old male with purulent right ear discharge since his childhood reported to me in early 2023. The history revealed that he was a smoker 10 cigarettes/day), had no systemic disorder or nasal deformity. As he had already consulted 3 doctors, I referred him to a ENT specialist in a private hospital. The aerobic culture of ear discharge was done. The isolate revealed K. Gyiorum Biotype with a score of 2,43 which was susceptible to ceftazidime, ceftriaxone, cefotaxime, cefepime, amikacin and ciprofloxacin; while resistant to gentamicin and trimethoprim-sulfamethoxazole. The patient had to undergo mastoidectomy, discharged from the hospital after a day prescribing intra-muscular ceftriaxone 2 g/day and ciprofloxacin ear drops. His ear drainage stopped after 15 days.

5. CSOM in School Children: A community based descriptive cross-sectional survey in 30 schools of rural areas of Gadag district in Karnataka over a period of 2 months between 15th July and 15th September 2020 covering 1694 school children aged between 6 and 14 years as part of general examination for a nutrition (mid-day meal egg supplementation) study. A detailed history and simple examination under torch light by out MPH scholars were done in the school premises. CSOM was present in 84 (5%). Among which 54 (two thirds) of them lived in families with overcrowding. H/o cleaning the ear with various materials was given by 63 of them. 65

(80%) of them had recurrent respiratory tract infection, 16 (19%) students had active disease of which only 7 had consulted the local health centre.

6. A case of Cerumen Blockage: A 50-year-old female with a previous history of tympanoplasty 5 years earlier came to my clinic with a sensation of ear blockage in her right ear accompanied by ipsilateral hearing loss. She reported multiple failed efforts of ear wax removal at home and local ENT clinic, and use of alkaline ear drops. On examination, the patient was comfortable and afebrile, and had stable vital signs. Otoscopic examination of the right ear revealed impacted left ear wax covering the tympanic membrane, which could not be assessed. Otoscopic examination of the right ear showed mild ear wax, and the tympanic membrane was unremarkable. I tried Ear wax removal under suction and after using alkaline ear drops for 7 days with no success. Then I referred to a Medical College Hospital ENT specialist who did a microscope-guided examination of the ears under general anaesthesia, that revealed right ear was full of wax that was accumulating in the skin and contained a thick keratinous plug that had dilated the external auditory canal (EAC) with pockets and bone remodelling and her ear canal was circumferentially distended with a normal annulus. The tympanic membrane was intact. The keratinous plug was removed, an ear pack was draped with antibiotics and placed in the right ear and discharged the same evening with the ear pack, which was removed after 3 weeks in the outpatient clinic. The patient was started on ciprofloxacin ear drops and analgesia for 1 week and the pain disappeared. Pathological analysis of the removed plug revealed acellular lamellated keratin flakes and keratinous material.

Discussions:

The normal ear has three parts each with specific important function- i) The outer ear (pinna and ear canal) gathers and directs sound, causing the eardrum to vibrate ii) The middle ear comprises the tympanic membrane, ossicles, mastoid, and eustachian tube, here the sound vibration is magnified and conducted to the inner ear iii) The inner ear (cochlea) transforms the vibration into electrical signals and drives it to the brain [1].

Several conditions can affect the middle ear- i) Eustachian tube dysfunction- The eustachian tube balances the pressure between the middle ear and outside pressure. Damage to the eustachian tube can damage the eardrum and affect the hearing ii) Ear infections: Middle ear infections may cause pressure, pain, hearing loss, rupture of the eardrum, and ear discharge iii) Tympanic membrane perforation- refers to a hole in the eardrum, leading to hearing loss, drainage, and pain iv) Cholesteatoma- characterized by abnormal skin growth in the middle ear v) Conductive hearing loss when the sound waves do not transmit to the inner ear. Ear ailments in children are a major public health problem in India [2].

The term “Otitis Media” (OM) includes a range of conditions, mostly characterized by inflammation of the middle ear with common symptoms of pain, irritability, and fever. Infections, allergies, and environmental factors contribute to the occurrence of otitis media with bacterial or viral aetiology. Many risk factors can predispose children to develop acute otitis media like preceding upper respiratory tract infection and genetic factors [3]. Acute otitis media can occur at any age, but it is most common in the age group of 6 to 24 months. Around 80% of all children would experience a case of otitis media during their life course.

Common home remedies practiced in rural India include: i) Sleeping posture with head elevated using a pillow to improve the sinus drainage ii) Neck exercises by stretching the shoulders as high as his ears and maintain that position for a while, are expected to getting relief from the acute earaches caused by the pressure in the ear canal, iii) An age-old technique of putting warm drops of Olive oil Mustard or Coconut oil in the ear. It soothes the ear pain. Mixing crushed garlic in the oil has both antibiotic and pain-relieving properties. However, instances of using warmer oils than the body temperature causing harm to the ear canal are reported, iv) Similarly, Ginger or Garlic juice having anti-inflammatory properties are put around the ear, but not into the ear, v) Using Hydrogen peroxide to clean the ear discharge- a few drops are put in the affected ear then let the child lay for a while. After a few minutes let the solution drain, that not only cleans the year but also treat infections effectively vi) Mustard oil is used to treat earaches caused by ear wax. A few drops of mustard oil are put in both the ears and let it get absorbed for 2 to 3 hours. After 3 hours it would be easy to extract ear wax using an earbud and give instant relief, vii) Urban families try to divert child’s attention by allowing the child to watch his/her favourite cartoons or let him play with his favourite toys to help take his/her mind off the pain viii) Preventions of future episodes by not allowing the child the swimming without swimming caps because as water enters the ear canal, and deteriorate the situation and cause a fungal infection.

Most rural India don’t have access to ENT specialists below district level and therefore ear problem cases approach general practitioners. Since most cases of OM are encountered in children t is important for the GPs to learn Paediatric ear exam in an appropriate manner. The approach involves being able to engage the caregiver in the exam and to inform them regarding the importance of the exam with regards to the diagnosis of AOM. They do need to exam the ear and identify 1)Appearance of the Tympanic Membrane, which is described in different stages: i) Mild erythema only, No effusion, myringitis only ii) Otitis Media with Effusion- Mild erythema, air/fluid level clear fluid, no bulging, retracted TM with prominent short process of the malleolus iii) Otitis Media with Effusion- Mild erythema, no opacification, retracted TM with prominent short process of the malleolus iv) AOM vs. OME Uncertainty- Mild/moderate bulging, full opacification, air fluid level or air bubble(s), intense erythema v) AOM vs. OME Uncertainty: Moderate bulging complete effusion and opacification (no bubbles) intense erythema vi) Acute Otitis Media- Bulging rounded doughnut appearance of tympanic membrane, moderate vii) Acute Otitis Media- Bulging, bulla, complete effusion, opacification, marked erythema. For clinical understanding ear diseases are classified as : 1) Acute suppurative otitis media (AOM), pain in the ear; 2) Suppurative Otitis media (ear pain or discharge that lasts for less than 2 weeks;3) Chronic suppurative otitis media (CSOM, persistent purulent discharge that lasts for more than 2 weeks);4) Non-suppurative otitis media (NSOM) including acute and chronic NSOM;5) Impacted cerumen (wax plug that obstructs the tympanic membrane;6) Serous otitis media (retracted and dull tympanic membrane). All these conditions are interrelated and may lead to the development of severe form. Suppurative otitis media is associated with life threatening complications.

1.AOM: Symptoms of acute otitis media are so nonspecific that they are largely unhelpful in making a diagnosis. Earache is the only symptom with sufficient positive predictive value to be useful in diagnosing acute otitis media. Among the signs cloudiness and bulging of the tympanic membrane is helpful rule in the diagnosis, and the absence of impaired mobility helps rule it out. Treatment with antibiotics reduces the pain of acute otitis media after a day of treatment in 5% of cases only, with a similar proportion having antibiotic-related side effects, therefore Antibiotic therapy has no important effect on hearing loss. AOM leads to hearing loss (mild or greater) [5-6].

Disabling hearing loss corresponds to hearing loss greater than 30 dB in the better hearing ear in children (0 to 14 years). In India around 6% of the population is reported to have hearing loss. In children hearing loss can negatively impact many aspects of life such as communication, the development of language and speech cognition, education, and mental

health. About 10% of children have impacted cerumen. Few communities based observational studies done in Indian context including children (0 to 15 years) have shown the prevalence of ear ailments in the range of 4.5 per cent to 25.78 per cent.

2.Acute suppurative otitis media (ASOM): ASOM usually causes severe deep ear pain, fever, and a conductive hearing loss in the affected ear. The purulence in the middle ear is also present in the mastoid air cells because they are connected. ASOM is the most common infection of childhood except for acute upper respiratory tract infections. It is the most common condition for which children seek medical care from their primary care physician. Usual pathogens causing ASOM include Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis.

ASOM is treated with broad-spectrum oral antibiotics; but indiscriminate use of antibiotics is becoming common and result in antibiotic resistance. Occasionally, ASOM does not respond as expected to standard antibiotic therapy, If, it occurs, culture and sensitivity testing must be done by tympanocentesis (After sterilizing the ear canal with alcohol, a 22-gauge spinal needle to be placed through the posterior or anterior inferior quadrant of the tympanic membrane and fluid be aspirated with a small syringe). Therefore, accurate diagnosis by otoscopy must be made before initiating a course of antibiotics.

Complications of ASOM include i) Temporary conductive hearing loss which resolves as the middle ear effusion clears, ii) **Spontaneous Perforation:** Sometimes the infection necroses the tympanic membrane, causing a spontaneous perforation. Small perforations usually heal in less than 7 days, but larger perforations may persist, cause a permanent conductive hearing loss, which can be corrected by only a tympanoplasty for closure of the perforation iii) Rarely the ossicular chain gets disrupted by necrosis of the long process of the incus requiring ossicular reconstruction to restore hearing iv) Acute coalescent mastoiditis occurs when infection erodes the bony mastoid cortex and destroys bony septa within the mastoid. A subperiosteal abscess may also be present, that exhibits a postauricular erythema and oedema over the mastoid area, the auricle is displaced laterally and forward. Otoscopy reveals forward displacement of the posterior superior skin of the ear canal. The treatment involves a wide field myringotomy from the anterior inferior quadrant to the posterior inferior quadrant, a tympanostomy tube placement for middle ear drainage, and a postauricular mastoidectomy to drain the subperiosteal abscess and the mastoid, v) Facial nerve paralysis rarely occurs from inflammation of that portion of the facial nerve that is exposed in the middle ear during ASOM, that needs to be treated with parenteral antibiotics, ototopical antibiotic drops applied in the ear canal, and a wide field myringotomy and tympanostomy tube placement, that helps in complete recovery of facial function, taking few weeks to several months.vi) Intracranial complications of ASOM may include meningitis, epidural abscess, brain abscess, Otitic hydrocephalus, and lateral sinus thrombosis. Meningitis is the most common intracranial complication of ASOM, associated with profound sensorineural hearing loss and loss of vestibular function. Treatment of the intracranial complications of ASOM is focused on appropriate treatment of the intracranial process, in addition to a wide field myringotomy and tympanostomy tube placement in the affected ear [3,6].

Myringoplasty with innovative technique: A prospective case series involved 48 patients among which 81% had large marginal perforations who underwent endoscopic cartilage myringoplasty using this innovative technique, had encouraging results. Among the remaining 14.6% had subtotal perforations, and only 4.2% with total perforations. The mean duration of the surgical procedure was 38.6 ± 7.1 minutes. At the 12-month follow-up, the graft success rate was 90%. Hearing outcomes exhibited significant improvement, that led to a significant enhancement in hearing abilities (as there was a reduction in the mean air-bone gap from 25.6 ± 5.2 dB preoperatively to 16.5 ± 4.1 dB postoperatively) [13].

Chronic Suppurative Otitis Media (CSOM): Also known as chronic otitis media, is a stage of ear disease in which there is an on-going chronic infection of the middle ear without an intact tympanic membrane. This disease is a chronic inflammation of the middle ear and mastoid cavity. The prevalence of CSOM in urban school children is around 2-3%, while for rural children, it is almost double around 5-6%. Surprisingly 42% of cases of CSOM are seen in upper-lower socioeconomic group followed by lower middle group (32%). The tubotympanic disease contributes around 87%, and 13% had atticoantral disease of all CSOM cases.

A community based descriptive cross-sectional survey in 7 schools of rural areas of Belagavi district in Karnataka over a period of 2 months between 15th July and 15th September 2018 covering 694 school children aged between 6 and 14 years. A detailed history and otoscopic examination were done in the school premises. CSOM was present in 36 (5.2%) out of 694 students examined among which 22 (two thirds) of them lived in families with overcrowding. H/o cleaning the ear with various materials was given by 27 (75%) of them. 29 (80%) of them had recurrent respiratory tract infection, 7 (19%) students had active disease. There was a higher prevalence of safe disease with central perforation than unsafe disease. Recurrent respiratory tract infections and history of cleaning of ear were the predictors of CSOM among school children.

A systematic review following PRISMA guidelines (preferred reporting items for systematic reviews and meta-analysis) including Six studies reporting the prevalence of otitis media in children. The pooled estimated prevalence of Chronic suppurative otitis media (CSOM) in children of India was around 4% (3.78%), Otitis media with effusion was found to be 3% (2.68%) and Acute suppurative otitis media (ASOM) to be less than 1% (0.55). However, lack of epidemiological studies, the actual disease burden remains concealed. India has been classified as the high prevalence country with national prevalence of 4% [7].

In a study of a total 200 cases of chronic suppurative otitis media including both safe (mucosal) and unsafe (squamous) with the mean age of participants of 22.8 ± 15.18 years. Of the total participants, 111 were males, and 89 were females and the majority (60.5%), of them were from rural background. Around one-fourth of the patients were illiterate (23%) and the patients mostly belonged to lower side of the spectrum of Kuppuswamy socioeconomic classification. Overall, 151(75.5%) patients had conductive hearing loss, 30 (15%), with mixed and 19 (9.5%) did not have any hearing loss at presentation. The distribution of patients with regards to hearing loss was found to be similar in both safe and unsafe groups (P = 0.311). The distribution of age-group, gender, and laterality (side of involvement) was similar (P>0.05) in both safe and unsafe type [8].

A study in 2016-17 in which Otolaryngologists prospectively collected middle ear fluid from 582 children by tympanocentesis or sampling through a spontaneously ruptured tympanic membrane The results showed that, at least 1 bacterial pathogen was identified in 473 of the samples (81.3%). Non-typeable Haemophilus influenzae (54.8%) was detected most frequently, followed by Streptococcus pneumoniae (25.4%), Streptococcus pyogenes (2.9%) and others. Genotypic penicillin-resistant S. pneumoniae accounted for 28.7%, while the penicillin-resistant serotypes 15A and 35B had increased [9].

Cerumen Blockage: The wax in the ears is made by glands in the skin of our outer ear canal. The wax and tiny hairs in these passages trap dust and other materials that could damage the eardrum. In most people, a small amount of earwax regularly makes its way to the ear opening, and washed away or falls out as new wax replaces it. If some one's ears make too much wax or if earwax isn't cleared well enough, it may build up and block ear canal. Earwax blockages often happen when people try self-cleaning by using cotton swabs or other items as the process may just push the wax deeper into the ear, rather than removing it. Though earwax blockage has no symptoms some time it may be the cause for Earache, Feeling of fullness in the ear, tinnitus, hearing loss, dizziness, cough, itchiness in the ear, Odor or discharge in the ear and pain or infection in the ear [11].

Diagnosis: Any other person including a health care provider can see the earwax blockage by looking in the ear, especially using a special tool that lights and magnifies the inner ear called otoscope.

Treatment: Treatment involves removal of the excess wax by using a small, curved tool called a curet or by using suction techniques. An ENT specialist can flush out the wax using a syringe filled with warm water and saline or diluted hydrogen peroxide. Carbamide peroxide medicated ear drops are also used to help soften the wax. However, these drops can irritate the delicate skin of the eardrum and ear canal, must be used carefully

Conclusion:

Ear ailments are a major public health problem in India especially among children.

Middle ear inflammation is a spectrum of conditions known as acute otitis media *(AOM),* Otitis media with effusion (*OEM or glue ear*) Chronic suppurative otitis media *(CSOM)* and Cerumen blockage.

All these conditions are interrelated, may lead to the development of severe form. Suppurative otitis media is associated with life threatening complications like mastoiditis, and conductive deafness.

Infants and young children are the key victims of AOM, and schoolchildren are affected by CSOM.

Medical management depends upon antibiotics, antihistamines, and decongestants.

Surgical interventions are done by ENT specialists that include Mastoidectomy, Myringotomy and ear drum perforation repairs for specific conditions affecting hearing ability.

Most rural population do not have access to ENT specialists in India, therefore approach general practitioners, who need to develop basic ear examination and treatment skills.

It is imperative to promote more epidemiological studies that will aid policy makers in recommendation of preventive, diagnostic and treatment strategies for this disease.

References:

1. Anatomy and Physiology of the Ear.
2. Ear diseases and disorders.
3. Prevalence of Ear Infections in Children (0 to 15 Years) of India, A Systematic Review and Meta-Analysis, Ragini Bhatia, et.al.
4. (2023). Otitis Media Prevalence in Children Below 18 Years of Age of India, Indian J Otolaryngol Head Neck Surg, 75;133-139.
5. Otitis Media with Effusion Treatment & Management, Thomas S Higgins et.al.
6. Acute Suppurative Otitis Media, William P. Potsic, et.al.
7. (2018). Prevalence of Chronic Suppurative Otitis Media in School going Children, Parmar, et.al, *Indian Journal of Otology*, 24(4): 223-226.
8. Shama Bellad, (2019). Prevalence of Chronic Suppurative Otitis Media in School going Children in Rural Belagavi, Karnataka, et.al, Indian J Otolaryngol, *Head Neck Surg.*
9. Clinico-epidemiological study of safe and unsafe chronic suppurative otitis media.
10. (2019). Chronic Suppurative Otitis Media Treatment & Management, Denny Varughese et.al.
11. Earwax blockage diagnosis and Treatment.
12. What is middle-ear surgery? Divya Jacob et.al.
13. (2023). Innovative Surgical Method Enhances Hearing in Ear Perforation Cases.

DOI:10.31579/2690-8794/198